Local Networks Are Buzzing

by Chris Morgan, Editor in Chief

Buzzwords are a way of life in the computer industry, and the latest buzzword (or, to be more correct, buzz-*phrase*) among computer cognoscenti is the *local network*. Networks in one form or another have been with us for some time. IBM's SNA network and the X25 public network from ISO (International Standards Organization), used by Tymenet and Telenet, are systems designed to transmit huge amounts of data over long distances. But recently a whole new industry has sprung up to serve personal computer owners who want to send electronic mail or share the other resources of a local network.

This month we present several articles about local networks, including one written by Harry J Saal, President of Nestar Systems Inc, called "Local-Area Networks: Possibilities for Personal Computers." It's an excellent overview of local networks, their history, and the current state of the art. Much of the impetus behind the blossoming local-network field comes from Ethernet, Xerox's high-end local network system that can transmit up to 10 megabits per second (Mbps) of information between users. You may have seen the recent television advertisements for the Ethernet system.

Although Ethernet works well for large-scale systems employing minicomputers or mainframes, it's a case of overkill for microcomputers, which have inherent speed limitations. Two local network schemes, both patterned in one way or another after Ethernet, now exist to serve the microcomputer market. One such network, made by Nestar, is described in detail by Dr. Saal. The other is a relative newcomer — Corvus's Omninet.

Comparing Two Systems

While the Nestar system, officially called the Cluster/One Model A, is designed exclusively for use with Apple II computers, the Omninet system allows users to mix and match such computers as the Apple II, Radio Shack's TRS-80, the Onyx, and computers using the LSI-11 processor and the S-100 bus.

The data-transfer rate of the Omninet system is 1 Mbps, compared with Nestar's 240 kbps. Although Omninet is technically four times faster than the Nestar system, the numbers can be misleading because the actual amount of time spent transmitting or receiving data to and from the network usually represents only a fraction of the total computing time. Recent tests by Xerox of the Ethernet system bear out these results.

Of more importance to the average user is the network's reliability and how easy it is to use. The Nestar system has been around for more than two years and has earned high marks for reliability and sophistication. It's particularly well suited to classroom use, and I have seen the system at work in many schools around the country. The Omninet system is just beginning to appear on the market, and we plan to review it in detail in a future issue of BYTE. Aside from its ability to handle a variety of computers, Omninet also offers the attraction of low price. The hardware cards for the Apple II, TRS-80, and

S-100-type computers cost less than $500 each, meaning that two interested networkers could assemble a minimal two-node network for less than $1000. The only additional cost is for the twisted-pair wiring used to connect the two computers. No central control computer is needed to run the network.

Data is transmitted on the Omninet in blocks of ASCII characters using software tools called pipes, reminiscent of the pipes used in the UNIX operating system but operating in a different manner. In this way, machines having incompatible operating systems (such as CP/M and UCSD Pascal) can communicate, albeit with some limitations.

Comparing Nestar and Omninet is like comparing the proverbial apples and oranges (pun intended). Omninet is attractive for entry-level users, and it's the only choice if you want to combine various brands of computers. Although rumor has it that Nestar is expressing an interest in other brands of computers besides Apple, the company has made no official statement on the subject.

Nestar has its own advantages, including its excellent track record. The file server used in the Nestar system is actually an Apple II computer, which can act as a spare if needed in the system. Also, Nestar offers extensive and well-documented software. The Nestar system requires 16-conductor ribbon cable for computer interconnection, compared with twisted-pair wire for the Omninet — a cost saving for the Omninet user.

Corvus is actively promoting Omninet as an industry standard for microcomputers. Onyx already has bought an Omninet license, and the Japanese are reportedly interested in the network. (I recently saw a very interesting hobbyist-designed local network system at the offices of *ASCII* magazine in Japan. We hope to tell you about that in a future issue.)

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